

calyculation of the beaks, the internal ligament, and the dentition. I am not, however, surprised at the difficulty of distinguishing these tiny objects without a patient comparison with others of a similar kind.

If Mr. Clark has found the *Lepton sulcatulum* at Exmouth (which does not clearly appear from his last paper), the new locality should be noted.

I am, Gentlemen,

25 Devonshire Place, London,
January 20, 1860.

Yours faithfully,

J. GWYN JEFFREYS.

BIBLIOGRAPHICAL NOTICE.

On the Origin of Species by means of Natural Selection; or, the Preservation of Favoured Races in the Struggle for Life.—By CHARLES DARWIN, M.A., F.R.S., F.G.S., &c. London, 1859.

TO endeavour to understand the various "beginnings" of the organic world is so essentially the part of an inductive, inquiring mind, like that of the distinguished naturalist who has lately given us the remarkable volume bearing the above title, that no amount of failure in the attempt to do so can check the inherent desire that we possess to renew our efforts, again and again, to discover them. Yet, in spite of this, no trains of reasoning have ever yet brought us, and none with which we are acquainted, we may safely add, ever *can* bring us, to the absolute origin of the present order of things, and unfold to us (what perhaps it was never intended that we should know) the mysteries of creation. "We cannot in any of the palæontological sciences," says Dr. Whewell, "ascend to a beginning which is of the same nature as the existing cause of events, and which depends upon causes that are still in operation. Philosophers never have demonstrated, and probably never will be able to demonstrate, what was the original condition of the solar system, of the earth, of the vegetable and animal worlds, of languages, of arts. On all these subjects the course of investigation, followed backwards as far as our materials allow us to pursue it, ends at last in an impenetrable gloom. We strain our eyes in vain when we try, by our natural faculties, to discern an origin."

When we look abroad into the world around us, we find ourselves in the midst of a variety of phenomena, and an endless array of organic forms, all circling onwards, yet never, so far as we can see, altering in aspect; so that, from the light of mere nature alone, there seems no reason why they should not go on for ever,—

"Still changing, yet unchanged, still doomed to feel
Endless mutation in perpetual rest."

Neither, on the same grounds, would it appear necessary to believe that they had ever *commenced*, did not geology inform us that there was a time in the world's history when they did not exist, but were

replaced by another class of beings which occupied their places ; and that this latter set was, at a far earlier age, represented by another ; and this, again, by an older one still ; and so on, until we seem to reach at length the primordial beings with which this planet was originally stocked. It is to discuss, and to *account for*, this succession of beings throughout time and space that Mr. Darwin's book has been compiled ; and the great principle by which he believes them all to have been successively produced he terms "Natural Selection."

The opinion amongst naturalists that species were independently created, and have not been transmitted one from the other, has been hitherto so general that we might almost call it an axiom. True it is that we cannot prove this ; but then, on the other hand, we cannot prove the converse ; and, since of two unproveable propositions we have a right to take our choice, the former has been universally accepted, as most in accordance with the intelligible announcements of revelation, and as aiding us in the otherwise hopeless task of understanding what a species really is. This proposition Mr. Darwin boldly calls in question, and believes, on the contrary, that all species (man included) may have been derived, each in its turn, from those below them by the mere "selecting power of nature,"—which is supposed to have been continually at work, through countless ages, in rejecting (by inevitable annihilation) the weakest and most ill-developed individuals which everywhere existed, and in preserving every little modification which chanced from time to time (in the "great struggle for life" which has ever been going on amongst organic beings) to turn out *for the benefit* of its possessor, and transmitting it, by the law of inheritance, to the next generation, to be further increased in the same direction, until, at length, in the course of centuries, the various races have each become so far modified in structure (and that, too, *intermittently*, or, as it were, *en route*, according to their position, or advancement, in the animal pedigree) as to have assumed the various forms, past and present, which naturalists have described under the name of "species." The fossils of each geological formation, on this view, "do not mark a new and complete act of creation, but only an occasional scene, taken almost at hazard, in a slowly-changing drama" (p. 315) ; and "the fact of the fossil remains of each formation being in some degree intermediate in character between the fossils in the formations above and below is simply explained by their intermediate position in the chain of descent" (p. 476).

Now, whether right or wrong in their assumption, and however much they may differ in their exact definitions, it is quite evident that there is an *idea* involved by naturalists in the term "species" which is altogether distinct from the fact (important though it be) of mere outward resemblance,—viz. the notion of blood-relationship acquired by all the individuals composing it, through a direct line of descent from a common ancestor ; and therefore it is no sign of metaphysical clearness when our author (p. 51) refuses to acknowledge any kind of difference between "genera," "species," and "varieties," except one of *degree*. *Practically*, no doubt, the differences, as we

define them, are entirely, and must be, of this nature, for we are necessarily driven to form our judgment solely from outward characters (and must often trust, as it were, to chance, that our decision, thus arrived at, is correct); so that it is quite possible (nay, almost certain) that what one naturalist may rank as a species, another may perhaps, occasionally, believe to be only a variety: nevertheless the *idea involved* in the two terms is not invalidated on that account; and it is simply taking advantage of the imperfections of our discernment (whilst compelled to conjecture from the mere characters which are externally visible), to throw discredit on a distinction between essentially different *ideas*. Man may blunder (and we have but too clear evidence that he often does); but that cannot make nature inconsistent.

There is one point, however, according to Mr. Darwin's own confession, which has struck him much: viz. that all those persons who have most closely investigated particular groups of animals and plants, with whom he has ever conversed, or whose treatises he has read, are firmly convinced that each of the well-marked forms was at the first independently created. But, says he, the explanation of this is simple: from long-continued study they are thoroughly impressed with the distinctions between the several races, and they ignore all general arguments,—refusing “to sum up in their minds slight differences accumulated during many successive generations.” But is this more, we may ask, than special pleading? If anybody is capable of forming an opinion on the origin of species, it surely must be those who have most closely studied them; for, if otherwise, we should arrive at the monstrous conclusion that, in order to generalize well, it is desirable to have only a superficial knowledge of the objects generalized upon!—a conclusion to which our learned and amiable author, we feel sure, would not subscribe. The true explanation seems to be this: not that the study of small details unfits an observer for wider areas of thought, but simply that a generalizing mind is of a higher stamp, and therefore less common, than one of an opposite tendency; so that there are more *collectors* in the world than generalizers. But to suppose the accurate study of minutiae to be detrimental to an enlarged interpretation of their results is certainly contrary to experience.

But let us briefly examine the argument of this volume, and see how it is sustained. In the first chapter, Mr. Darwin ably discusses the question of the variation of certain animals and plants under domestication; and few have paid greater attention to this subject than he has, or been more successful in their experiments. A close study of the varieties (acknowledged as such by all) of the domestic pigeon, the innumerable races of our common cattle, and also of what gardeners term “sporting plants,” has long convinced him, as well indeed it might, of the almost endless phases which may be gradually shaped out by the selecting power of man. This will be admitted by all, and by none more readily than by those who believe in the distinct origin of species; for, as no two species are alike, it follows that the constitutions of all are different; and if their number, there-

fore, be infinite, so will, likewise, be the degrees of their pliability. Hence, if it should have happened (whether from chance, or, which is more probable, from actual selection, after experiment) that the most plastic organisms have been operated upon, we cannot marvel at the results, however extraordinary. But that equal variations are never brought about in creatures of a less flexible temperament, is abundantly shown (by Mr. Darwin's own admission) in the case of such animals as the cat, donkey, goose, peacock, guineafowl, &c., which apparently, although so universally bred and domesticated, have not altered in the slightest degree in the course of time. Mr. Darwin explains this fact by supposing (p. 42) that the principle of selection has not been brought to bear upon them. But, if selection, "*unconscious*" as well as "*methodical*," has been going on to the extent believed, we cannot see why it should not also have silently acted, at any rate to a certain extent, in such cases as these, no less than in the others. To our mind the answer is plain: viz. that the species in question are by nature unpliant (like the great mass of animals), and therefore have not made any progress from their original starting-points.

But let us admit, for the sake of argument, that man, as an active, living agent, and therefore as an intelligent, efficient cause, capable of directing his experiments, and bringing judgment, taste, energy and intellect to bear upon them, possesses the power of altering, in the course of time, the external features (even though they be usually unimportant ones) of nearly *all* the organisms, animal and vegetable, on which he may systematically operate: let us admit this (for we do not wish to be unnecessarily sceptical); and then let us discuss the question, whether there is any principle in nature analogous to this selecting power of man; for, if there is, why should not similar modifications be produced even in the external world? Mr. Darwin believes that there is such a principle; and his second chapter is consequently devoted to what (as we have already stated) he calls "*Natural Selection*."

The rate at which all organisms would naturally multiply, if unopposed by external checks, is perfectly enormous. The elephant, the slowest breeder of all known animals, would in 500 years, says Mr. Darwin, produce fifteen million elephants, descended from a single pair. There is no exception to the rule that every organic being naturally increases at so high a rate that, if not destroyed, there literally, in a few centuries, would not be standing-room on the earth for its progeny! Hence arises the certain fact that more individuals must be destroyed annually than are born, and that therefore there must be a constant warfare going on amongst living beings, and, as a consequence, a general struggle for life: and in this battle it is reasonable to suppose that the most gifted, or fully developed, individual, each of its kind, would have the best chance of success and (through having survived) of begetting offspring,—which offspring would probably inherit, to some extent, the advantages of their parents, and would in their turn increase these advantages, and give birth to a still more highly gifted progeny; and so on (it is urged) *to an unlimited extent.*

Now, when not pressed too far, so as to become ridiculous, there is a speciousness, nay even a probability, about this theory to which most naturalists would readily give assent. Although unquestionably a mere theory, and incapable of proof when applied to the greater portion of the feral world, there is a reasonableness about it which at once commands our respect. It enables us to account for many a trifling variation which, because permanent, naturalists have usually regarded as of necessity aboriginally distinct, and smooths down some of the minor controversies concerning the value of minute modifications which may be properly referred to direct agencies from without. Indeed we will go a step further, and affirm that there is no reason why *varieties*, strictly so called (though too often, we fear, mistaken for species), and also geographical "sub-species," may not be gradually brought about, even *as a general rule*, by this process of "natural selection:" but this, unfortunately, expresses the limits between which we can imagine the law to operate, and which any evidence, fairly deduced from facts, would seem to justify: it is Mr. Darwin's fault that he presses his theory too far. The mere fact of any such varieties thus matured (if they do indeed exist in nature) being apt to be at times mistaken by naturalists for true species, is surely no argument against the genuineness of the latter: it merely shows the imperfection of our limited judgment, and that the best observers are liable to err, and either not to catch the true characters of a species intuitively (which, in point of fact, they could scarcely be expected to do), or else to assign at times undue importance to differences which they may afterwards detect not to be in reality specific.

We must candidly admit, however, that Mr. Darwin is most consistent to his principles; and for this we would give him every credit: for if he objects to the inconsistency of "several eminent naturalists," in the "strange conclusion which they have lately arrived at," that certain species have been created independently, whilst they deny the fact that a multitude of *formerly reputed* species are in the same category (p. 482), we might fairly take him on his own grounds, and cavil at his conviction (p. 484) "that all animals have descended from the, at most, only four or five progenitors, and plants from an equal or less number," and contend that he is bound to advance even still further than this, seeing that he objects to the existence of a limit simply *because we cannot* (by the nature of the case, for, *in its entirety*, it is not a "truth of sense") *strictly define it*, or (in our short-sightedness and stupidity) are apt to blunder and oftentimes to mistake its position. But he cleverly anticipates this objection (and a very serious one, for him, it would have been) by nipping it in the bud: "Analogy," he says, "would lead me one step further, viz. to the belief that all animals and plants have descended from some one prototype." "Therefore I should infer, from analogy, that probably all the organic beings [*i. e.* animals as well as plants] which have ever lived on this earth have descended from some one primordial form into which life was first breathed" (p. 484). This is plain language, at any rate!

But, having said a few words on the narrowness of the limits within which we can honestly conceive this ingenious fancy to be applicable, we might call attention to many other considerations arising out of it, did space permit. To our mind indeed the whole theory of "natural selection" is far too utilitarian, and its importance immensely overrated. "An extraordinary amount of modification," says Mr. Darwin, "implies an unusually large and long-continued amount of variability, which has been continually accumulated, by natural selection, *for the benefit of the species*" (p. 153); but surely every naturalist must, in his own province, have observed that a vast number of "modifications" have apparently no reference whatsoever to the "good," or advancement, of the species (a fact indeed which has not altogether escaped, *teste* p. 90, our author's sagacious ken), but are often merely, as it were, fantastic, or grotesque, having no connexion with either its well-being or mode of life, and the final cause of which it is utterly hopeless to discuss. Moreover, some of these "developments" (so called) seem merely given for the adornment or elegance of the creature, and frequently display an arrangement of colouring which nothing but an actual intelligence could have planned, and which therefore no amount of mere chance "selection" by an imaginary agent called "nature" can be supposed to have effected. Nor can such characters be referred to what our author would call "sexual selection," seeing that, in the majority of instances, they pertain to both males and females. Neither can they be due to "correlation of growth;" for we cannot conceive that such marvellous perfection of painting as, for instance, the tints of certain butterflies (which are blended together with such nicety and consummate skill, in accordance with the laws of colouring, as to surpass an artist's touch) could have been brought about through mere correlation with a change in some other part of the organism. Such cases bespeak thought, imagination, and judgment, all and each of the highest stamp, and are utterly inexplicable on any of the three principles above alluded to.

Besides, to make "nature" accomplish anything requiring intelligence and foresight, and other attributes of mind, is nothing more or less than to personify an abstraction, and must be regarded therefore as in the highest degree unphilosophical. We believe it was Coleridge who first called attention to this fact, that to treat a mere abstraction as an efficient cause is simply absurd. But that this is the plain and undoubted tendency of our modern materialists, the following sentence, taken at random from the present volume, will certainly go far to corroborate: "As man can produce, and certainly has produced, a great result by his methodical and unconscious means of selection, what may not *nature* effect? Man can act only on external and visible characters: *nature* cares nothing for appearances, except in so far as they may be useful to any being. *She* can act on every internal organ, on every shade of constitutional difference, on the whole machinery of life. Man selects only for his own good; *Nature* only for that of the being which *she* tends. Every selected

character is fully exercised by *her*; and the being is placed under well-suited conditions of life" (p. 83).

But who is this "Nature," we have a right to ask, who has such tremendous power, and to whose efficiency such marvellous performances are ascribed? What are her image and attributes, when dragged from her wordy lurking-place? Is she aught but a pestilent abstraction, like dust cast into our eyes to obscure the workings of an Intelligent First Cause of all?

Although it is quite possible that there may be a final cause for every thing, and every character of a thing, in nature (in the same sense as one of our acutest metaphysicians has contended that religion is the final cause of the human mind), we should nevertheless be exceedingly reluctant to press this doctrine too far, for all experience warns us that it may become an impediment, rather than a help, to the progress of scientific discovery. Yet it is one thing to give it more than its due, another to reject it altogether: and those who, like our author, prefer being shipwrecked bodily on the rocks of Scylla to running the slightest risk from the opposite Charybdis, need but to be reminded that a proper use of it has been as fruitful in guiding the researches of our greatest physiologists as the abuse of it has been instrumental in perverting them. And we may confidently affirm that Bacon's famous censure on the "barrenness" of these "vestal virgins" (which was applied, be it remembered, to *physics only*, and which has been made so much of by the advocates for the sufficiency of secondary causes in the organic world) would have been less severe "could he have prophetically anticipated," as Sedgwick has well remarked, "the modern discoveries in physiology."

But, before dismissing these immediate considerations, we must say a word or two on the fact of "individual variability," which we cannot but think has been made too much of throughout the volume before us. Without it, "natural selection" would be of course impossible—that is evident; but is its *presence* sufficiently significant to render the theory in any degree *probable*? This is the question with which we are now concerned. Mr. Darwin says that it is only necessary for an individual to vary, be it ever so little, for the principle of natural selection to be established; but to us it seems almost incredible that the general "struggle for existence," or even the extreme pressure of peculiar circumstances from without, should find in mere "individual variability" a sufficient *primum mobile* to lay the foundation of a series of after-divergences (in a given, undeviating direction) destined, each, to accumulate, by infinitesimal degrees, into such successive, intermittent, well-marked forms as to merit, at each stage, the rank of "species." For "individual variability" (so called) is scarcely more, after all, than one of the many proofs, or indices, of individuality; so that to assert its *existence* is simply to state a truism. Amongst the millions of people who have been born into the world, we are certain that no two have ever been *precisely* alike in *every* respect; and, in a similar manner, it is not too much to affirm the same of all living creatures (however alike some of them may seem to our uneducated eyes) that have ever existed. We

cannot demonstrate this, undoubtedly, for it is not a truth of *sense*; but it is a truth, nevertheless, of the highest reason (founded on a limited experience), which a reflecting mind will at once receive without evidence; and it may therefore be almost regarded as an axiom. But what does this fact (self-evident as it is) indicate, except this: that, whilst "individual variation" (in each species) is literally endless, it is at the same time strictly prescribed within its proper morphotic limits (as regulated by its specific range), even though *we may be totally unable to define their bounds?* For, if otherwise, how could it happen that, whilst individually different *ad infinitum*, they are nevertheless (in many species) so alike in the mass as to appear to our rough judgment absolutely identical? Hence, we cannot regard "individual variability" as a phenomenon of any real importance or signification, but simply as a *fact* almost involved, as it were, in our very notions of individuality; for, if ever there was a truth more certain than another, it is this: that "there is no similitude in nature that owneth not also to a difference."

But, although we cannot honestly believe, except to a very limited extent, in this "natural selection" theory, as being directly opposed to the doctrine of Efficient Causation (which involves the conception of intelligence, free-agency, and will), as excluding even the idea of creative foresight from the natural world, and so rendering final causes both absurd and impossible, and, moreover, as built chiefly upon negative evidence, and unsupported by the majority of *facts*, still we by no means wish to imply that Mr. Darwin's volume (so full, as it is, of bold hypotheses and philosophical suggestions) is not a most valuable and important fund of knowledge, but, on the contrary, that it will doubtless prove a solid and lasting contribution to science, as one which will inevitably direct a mass of future observations into a new channel; for to leave an opposite impression would be the deepest act of ingratitude on our part for the great profit that we have derived from the careful perusal of its contents. His remarks on geographical distribution (a subject which he has so long and so carefully studied) are most instructive and admirable, and will supply an explanation for many an obscure and puzzling fact which has so often perplexed observers, concerning the appearance of similar and closely allied forms in regions far removed from each other. Especially interesting, too, is the whole of his Section on "Dispersal during the Glacial Period," from which we should be tempted to quote largely did space permit. But as such is unfortunately wanting, we must leave this subject, as well as the entire portion concerning the geological succession and the imperfections of its record, altogether unglanced at. He states his difficulties with honesty, precision, and clearness, and sometimes (as it appears to us) even exposes them more than is necessary—to his own disadvantage: but we wish that we could add that, in spite of this candour on his part (a candour which is so manly and outspoken as almost to "cover a multitude of sins"), we thought *any* of them satisfactorily replied to. There is a clever and ingenious pleading for them all; but, if we look back into the volume, we find (to use the mildest expression) that each, in its turn, has been

left in doubt—awaiting further evidence. So that, until this is forthcoming, we cannot but feel that, whilst the theories are in one direction (and made to dovetail into each other), the great body of facts is unquestionably on the opposite side. More especially will this apply to that gravest of all objections (as Mr. Darwin frankly admits), *the thorough and complete absence* (both in geological collections, imperfect though they be, and those, extensive and endless as they are, of the Recent Period) of that countless host of transitional links which, on the “natural selection” theory, must certainly have existed at one period or another of the world’s history. They *may* be forthcoming some day; we cannot tell (and so, truly, may many other things, after the same fashion of reasoning!): but at present it is absolutely certain that we have not so much as a shadow of evidence either that they do exist or have ever existed. On whichever side we turn we find order and symmetry to be the law of creation, instead of confusion and disorder. To an uneducated eye, which views things only in the mass, this may not appear *primâ facie* evident; but those who have worked closest and longest at details, in the open field of nature, know that it is true. Naturalists may quarrel and blunder about the relative importance of minute differences, and therefore about the limits of their “species”—and perhaps nearly all of them have erred in drawing too tightly the boundaries between which “varieties” are supposed to occur; but nevertheless the plain fact remains, that, on a broad scale, more or less abrupt and well-defined forms alone have as yet been discovered, and that they do *not* shade off into each other by that legion of osculant infinitesimal links on which the very life, as it were, of this ingenious theory mainly depends.

As to the evidence to be gathered from the endless phases which have been gradually matured in our domestic cattle and pigeons by the long and systematic efforts of man, we deny that any parallel can be drawn from them, on a general scale, in the feral world; for everything tends to prove that the whole system of certain species (though *not*, as it is admitted, of all), when under domestication, tends to become plastic; whilst, moreover, we cannot ascribe to the operation of a doubtful, unproved (and perhaps altogether imaginary) natural “law” effects in any way analogous to those produced by an active, living agent (and therefore an intelligent efficient cause) who has been capable for centuries of concentrating his efforts with judgment, caution, discernment, and skill, and of carefully selecting, by a direct action of *mind*, all the various divergences that were favourable for his purpose, and so of “adding them up” (as Mr. Darwin happily expresses it), one by one, in a given direction, beforehand decided on, until he has at last succeeded (though at times, even then, with the greatest difficulty) in accomplishing the purpose which he had in view. And, besides all this, it is admitted that there are, after all, *some* forms which he cannot succeed in modifying: which certainly would tend to prove that *even his* most persevering efforts can only avail with certain more or less *naturally elastic* organisms. And that some undoubtedly *are* “naturally elastic,” as compared with

others, every naturalist who has worked six months under the open skies (instead of in his closet) is absolutely certain. Indeed, whilst we see hosts of species scarcely alter at all, in whatever circumstances and regions they are placed, and therefore whilst exposed to *innumerable conditions of surrounding organic forms*—so that (in a broad sense) they may be regarded as almost independent of the various influences alongside them,—we see, on the contrary, that other species are by constitution so unstable and shifting, in their external details, as scarcely to present *two phases alike* in even the several localities and altitudes of a continuous, unbroken tract. Nor is this mere assertion, for we are prepared to support it by the plainest facts; whilst, at the same time, we could point to a country in which nearly *all* the land-shells now existing (upwards of one hundred species) are found in a fossil state, conglomerated together in beds of indurated mud often twenty feet in thickness, and which have not altered, apparently, *so much as a puncture or a granule* during the enormous period (even though it be geologically recent) which has elapsed since they were first deposited,—a period, moreover, in which there is every reason to believe that the various physical conditions (and perhaps extent) of the whole region have most materially changed: which, at any rate, does not tally with that steady movement towards perfection, that certain progress, of some kind or other (even though slow), of organic forms, which a reception of this “natural selection” idea so loudly and positively demands.

As to the theological difficulties of this question, we must decline entering into them; for we believe that science and theology are best discussed apart, and that neither of them was ever intended to teach us the other. Nevertheless we fear it must be admitted that they are exceedingly grave, if not absolutely insurmountable; and, although as yet they have been altogether, and studiously, kept out of view, the time will assuredly come when, like all other objections, they must be fairly stated, the arguments on both sides candidly examined by competent judges, and each of them impartially weighed, on its own merits. Although it is obviously desirable, for more reasons than one, not to bring revelation and science into unnecessary contact (for the evils which have resulted from injudicious attempts to do so have usually been but too evident), still no man who loves truth, in all its phases, for its own sake, will long rest contented in accepting *as such* a zoological creed which is in direct antagonism with his theological one; for, since two opposite sets of statements cannot be both true, one or the other of them must eventually fall. The question simply is: which, in this case, shall it be? Although we might hazard a hasty reply, we nevertheless will not do so; though we can anticipate the feelings of our more learned theologians, were a bouquet of some of the leading conclusions culled for their special contemplation. What, for instance, would they think, when told that, in spite of their honest convictions (convictions which they had supposed to be coeval with our race), it has been lately discovered that man, with all his lofty endowments and future hopes, was, in point

of fact, never "created" at all, but was merely, in the fulness of time, a development from an ape; and not merely from an ape, but that he was originally derived from the same source as bears, cats, rats, mice, geese, mussels, periwinkles, beetles, worms, and sponges (nay, even, perhaps, from the same as the very plants themselves); that, in all probability, he will at length beget some higher creature still, and will himself "become utterly extinct," like each of the beasts (throughout time and space) before him; and that, moreover, "as all the living forms of life are the lineal descendants of those which lived long before the Silurian epoch,"—"hence [—a cold shuddering comes over us at what we are compelled to regard as a glorious *non sequitur*, and that, too, from premises which we cannot admit!]
—hence (we repeat) we may look with some confidence to a secure future of equally inappreciable length!" Hard doctrine, this, for "unphilosophical" minds like ours! And, were we inclined to be sceptical as to the *data* on which this sweeping conclusion is built, we might naturally ask, how is it, *if the above premises be true* (*i. e.* if it indeed be a fact that man has been gradually qualified, by self-improvement, for his advanced post, after passing through an endless array of lower forms),—how is it that *no traditions whatsoever* bearing on the previous and more simple conditions of the human structure (immediately before it attained its climax of perfection) have ever been extant; for it is quite inconceivable that so radical an organic change could have been slowly brought about without, at the least, *some vague tradition of it* having become a *fact of the human mind*. When probed by such-like inquiries, the entire theory (*to the extent that it is pushed*) fairly crumples up.

But we must conclude this notice. Did space permit, we might have offered many remarks on the general tendencies of the Selection theory, *when carried out to its full extent*. We might have dived below the surface, to ascertain the main object of Mr. Darwin's clever and ingenious volume; and have asked, what it was that first prompted him to undertake it. If it was the marvel of creation (and a real marvel it assuredly is) that offered the primary stumbling-block to a philosophical mind, we might have asked whether the marvel would have been got rid of had we been able to reduce the number of the separate, independent acts. To our mind, the wonder consists in the act *at all*, and not in the number of times that it may have been repeated: for a Being that *can create* may surely do so as often as He pleases; and we have no right therefore to limit that act,—at any rate on the question of its *probability*; for, if we admit that it has been exerted so much as once, there is no *à priori* reason why it should not have been a million times repeated, or why, if He had so willed it, it might not, at some period or other, have been in even constant operation. Such an idea is difficult to conceive, we admit; but (be it remembered) *it is not one atom more so* than the process of creation *at all*: and with respect to the *marvel* of it (so difficult, and impossible, to understand), it may be well to recollect that it has been contended by some of our greatest minds that even the *sustaining* power of Nature is, in point of fact, as much of a miracle as the creative power.

Although we have felt compelled to say thus much against the theory so ably pleaded for in Mr. Darwin's book, we repeat that, *in a very limited sense indeed*, there seems no reason why the theory may not be a sound one; but at present, even to that extent, it remains to be substantiated. The volume is eloquently written, and its immense array of facts most carefully collected. But we are bound to add, that many an equivocal idea is shrouded under the fairest garb; and we find that we have sometimes swallowed a dose unconsciously, on account of the pleasant medium through which it was administered. And, as an instance of this, we will quote the concluding sentence of the whole work, which is certainly very beautiful, though we can scarcely believe that our author was in earnest when he wrote it. Here it is, without comment (the italics are our own):

"It is interesting to contemplate an entangled bank, clothed with many plants of many kinds, with birds singing on the bushes, with various insects flitting about, and with worms crawling through the damp earth, and to reflect that these elaborately constructed forms, so different from each other, and dependent on each other in so complex a manner, have all been produced by laws acting around us: these laws, taken in the largest sense, being Growth with Reproduction; inheritance, which is almost implied by reproduction; variability from the indirect and direct action of the external conditions of life, and from use and disuse; a ratio of increase so high as to lead to a struggle for life, and as a consequence to Natural Selection, entailing divergence of character and the extinction of less-improved forms. Thus, from the war of nature, from famine and death, *the most exalted object which we are capable of conceiving, namely, the production of the higher animals*, directly follows. There is a grandeur in this view of life, with its several powers, having been originally breathed into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed laws of gravity, from so simple a beginning, endless forms most beautiful and most wonderful have been and are being evolved."

Would not one step more plunge us headlong into the Nebular Hypothesis, and the whole theory of Spontaneous Generation?

PROCEEDINGS OF LEARNED SOCIETIES.

ZOOLOGICAL SOCIETY.

March 22, 1859.—Dr. Gray, F.R.S., V.P., in the Chair.

Mr. Gould exhibited and characterized two new species of birds, one belonging to the family *Cuculidæ*, the other to the *Coturniceæ*, and remarkable as forming probably the smallest species of the groups to which they respectively pertained.

For a small Shining Cuckoo, killed at Port Essington, on the north coast of Australia, and of the same form and very nearly allied to the *Chrysococcyx lucidus* of New South Wales and the *C. basalis* of Java, Mr. Gould proposed the name of *Chrysococcyx minutillus*;